$3 Drill That Can Make a Hole in Anything

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SUMMARY

Sooner or later almost every Maker will need to drill something that is almost un-drillable. Electrical drills make our lives much easier but they are almost useless on some work because the bit turns too fast and heat is allowed to build up to the level that destroys the bit.

Step 1 — $3 Drill That Can Make a Hole in Anything

- Pressing down hard with a masonry bit and turning slowly is all it takes. Regular steel can be drilled with a plain drill bit in this same way.
- This is a forgotten technique in the age of rechargeable drills. 125 years ago, holes were not "drilled," they were "ratcheted." In much more recent times, railroad tracks were drilled this way.

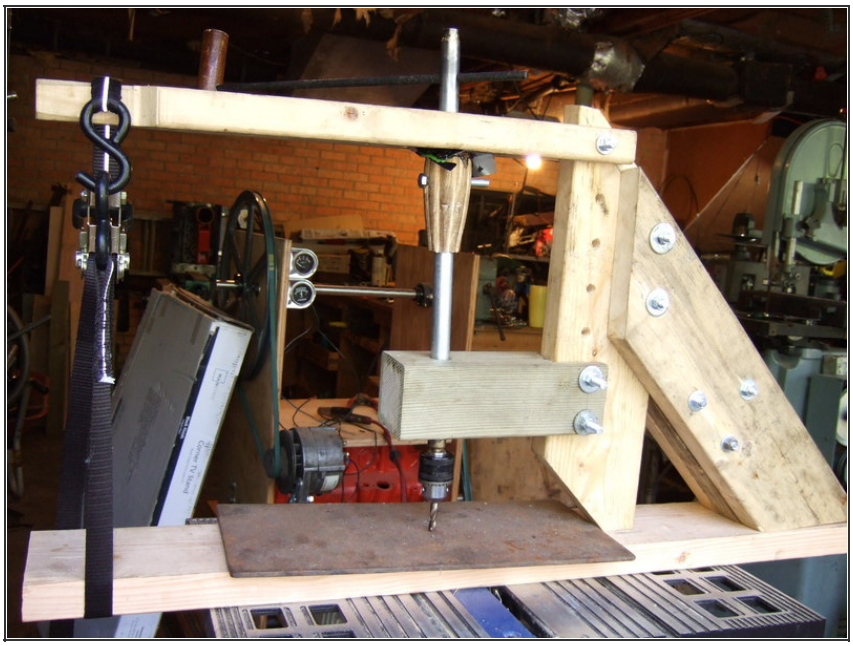
Step 2

- An early version of a once-common but now forgotten "Cole" drill.
- Not really forgotten, now, because of the efforts of our Multimachine news group.
- Sorry, the source of this picture has been lost.
- A drill like this would be very expensive now because of the need for a steel forging threaded with a fine internal thread.

Step 3

- This was the first test by the winner of a contest I ran to build an all-wood version of the drill. He tested it by making a 1" hole in steel plate.
- The "secret" is simple; just press down on the bit with 500 to 1000 pounds of pressure and turn slowly without letting the bit wobble.
- It is important to apply only enough pressure to get the bit to start cutting. If you apply too much pressure a wedge will build up at the cutting edge and it will be almost impossible to drill past it.

Step 4



- My subsequent wooden version worked pretty well but had a problem.

Step 5

- We need a better way to apply pressure to the spindle as it slowly rotates.
- It needs to durable and easily made in primitive conditions. A rounded hardwood hub and several large greased washers work but are not the elegant solution I am looking for.
- It needs to withstand a thousand pounds of pressure as the spindle turns and the angle of the arm changes.
- What's the big deal? Well, many millions of farmers could use a drill like this to attach plow points made from scrap steel to wooden plows. This would provide a huge reduction in plowing effort.
- This was designed at the request of an EWB engineering professor in Kenya. I took so long to find a way to drill these holes that, sadly, I lost contact with the man.